

CURRENT LITERATURE.

MINOR NOTICES.

LIEFERUNGEN 190-192 of Engler and Prantl's *Pflanzenfamilien* have recently been published. They are devoted to a continuation of the Polypodiaceæ by L. Diels.—C. R. B.

THE PAPERS of botanical interest printed in abstract or in full in the *Proceedings* of the Indiana Academy of Science for 1898 (published 1899) are as the following. THOMAS: Some desmids of Crawfordsville; MOTTIER: Nuclear division in vegetative cells; The centrosome in cells of the gametophyte of *Marchantia*; Endosperm haustoria in *Lilium candidum*; RISLEY: Absorption of water by decorticated stems; ARTHUR: Indiana plant rusts, listed in accordance with latest nomenclature; SNYDER: The Uredineæ of Madison and Noble counties, with additional specimens from Tippecanoe county; GOLDEN: *Aspergillus oryzae*; CURTISS: A red mold; OLIVE: Affinities of the Mycetozoa; CUNNINGHAM: Morphological characters of the scales of *Cuscuta*; COULTER: Notes on the germination and seedlings of certain native plants; BRANNON: Some Indiana mildews.—C. R. B.

STATISTICAL methods have come into greater prominence in biological study during recent years. Dr. Charles B. Davenport has prepared a useful little handbook,¹ in which, after some preliminary definitions, he sets forth the proper methods of measuring and counting organisms, of seriation and plotting of data, describes the constants of plotted curves and probable errors in their determination, and enumerates the classes of plotted curves. A chapter is devoted to correlated variability and the methods of determining the degree of correlation and heredity. Galton's, Pearson's and Duncker's methods of determining the coefficient of correlation are given. Formulas, rules, and ten tables useful for the various calculations make up the bulk of the handy volume.

A short chapter on the applications of statistical biological study calls for remark. That these methods are of great value for a study of variation and heredity admits of no doubt. That they will improve our conceptions of species and varieties is not at all clear. That "by the use of the quantitative method biology will pass from the field of the speculative sciences to that of the exact sciences" is surely a vain hope. We shall see the pendulum

¹ DAVENPORT, C. B.: Statistical methods with special reference to biological variation. 12mo. pp. viii+148, *figs.* 28. New York: John Wiley and Sons. 1899. \$1.25.

swing far toward the side of quantitative study and then back to a point nearer equilibrium.—C. R. B.

THE DEPARTMENT OF AGRICULTURE issues as one of its bulletins the first part of a useful little book, by the Chief of the Division of Forestry under the title, *A primer of forestry*.² In four chapters Mr. Pinchot presents in simple language (1) an account of the structure and activities of a tree as an individual; (2) the relations of trees in a forest, including their requirements as to light and moisture, and their reproduction; (3) the life of a forest, discussing the origin of the forest, the struggle between the trees, their death, and the modes of lumbering; (4) the enemies of the forest, including man, grazing, browsing, and trampling animals, insects and fungi, wind, snow, and fire.

The book is certain to be widely called for and is an excellent introduction to forest life for school reading. The physiology and anatomy are very elementary, but as accurate as such general statements can be. The numerous figures and plates which are almost all half tones from photographs, constitute an attractive feature: so much overdone, however, that half of them might be spared, as far as the text is concerned.—C. R. B.

THE LAST of the *Contributions* from the United States National Herbarium (5:145-259. pls. 18-64. 1899) is one of the most notable of the series. It contains the results of the most recent studies upon the Mexican and Central American flora by Dr. J. N. Rose, whose untiring labor both in the field and in the herbarium has resulted in large accessions to our knowledge of Mexican and Central American plants. The *Contribution* consists of two distinct parts, viz., taxonomic studies, illustrated by text cuts and ten plates; and notes on useful plants of Mexico, illustrated by thirty-seven plates of unusual excellence.

The taxonomic studies are as follows: a rearrangement of the suborder Agaveæ, in which eight genera are recognized, *Pseudobravoa* being new; synopsis of the North American species of *Nissolia*, including twelve species, five of them new; notes on Rutaceæ, with two new species of *Xanthoxylum*; notes on Turneraceæ, with a new species of *Turnera*; notes on Mexican species of *Clitoria*, with descriptions of two new species; notes on Malvaceæ and Bombaceæ, with descriptions of ten new species; notes on *Passiflora*, with one new species; synopsis of the North American species of *Waltheria*, including ten species, three of them new; notes on some Mexican species of *Thalictrum*, six of them being new; *Cedrela*, or Spanish cedar, with descriptions of two new species; notes on new or rare Leguminosæ, fourteen new species being described; descriptions of twelve miscellaneous new species.

²PINCHOT, GIFFORD: *A primer of forestry*. Part I. The forest. 12mo., pp. 88, pl. 47, figs. 83. Washington: Dept. of Agric. 1899.

In addition to these Mexican studies a new genus of Commelinaceæ, *Treleasea*, is established with three species, to include certain Texan and Mexican forms heretofore referred to *Tradescantia*; and three new species of *Tradescantia* from the United States are described. A new genus of Umbellifereæ from Mt. Ranier, Washington, *Hesperogenia* by name, is described by Coulter and Rose; and Mr. L. F. Henderson describes a new Aster and a new Angelica from Idaho.

The part devoted to a description of the useful plants of Mexico is based upon the personal observations of Dr. Rose during a visit of four months in the summer of 1897. It is full of interesting information and photographic illustrations, and is very suggestive of lines of economic investigation.—J. M. C.

NOTES FOR STUDENTS

M. J. GOLDBERG'S experiments lead him to the conclusion that during the germination of wheat in darkness proteid substances are produced in the embryo in considerable quantity,³ although Godlewski in 1897 thought this to be impossible.⁴—C. R. B.

COPELAND AND KAHLENBERG, by a series of carefully conducted experiments show that the injury to plants from solutions of pure metals (Nageli's oligodynamic effect) is due to the toxicity of the compounds (salts) which the dissolved metals form and not to any peculiar or toxic action of the elemental metal.⁵—C. R. B.

M. W. PALLADINE has determined that alternations of temperature accelerate the respiration of severed tips of etiolated shoots of *Vicia Faba* cultivated in 10 per cent. cane sugar. The increased energy of respiration does not depend on the quantity of active nitrogenous foods, but the real cause is not yet determined.⁶—C. R. B.

DR J. W. HARSHBERGER has observed a distinct thermotropic curvature of leaf blade and petiole in *Rhododendron maximum* L.⁷ In cold the blades are revolute and the petiole arcuate downwards. On bringing a branch into a warm room erection and flattening were complete within five minutes. The curvatures in a reverse direction are slower. Turgor variations are the cause.—C. R. B.

ITEMS OF TAXONOMIC INTEREST are as follows: GERRITT S. MILLER (Proc. Biol. Soc. Wash. 13: 79-90. 1899) has discussed the species of *Apocynum*

³ Rev. gen. de Bot. 11: 337-340. 1899.

⁴ Anzeiger Akad. Wiss. Krakau, March 1897, *vide* Goldberg.

⁵ Trans. Wis. Acad. of Sci. 12: 454-474. 1899.

⁶ Revue gen. de Bot. 11: 241-257. 1899.

⁷ Proc. Phila. Acad. Sci. 1899: 219-224. *fig. 3.*